B168	Directory Listing per line per month
B169	Forward-looking Network Operations Factor
B170	Alternative CO Switching Factor
B171	Alternative Circuit Equipment Factor
B172	EO Non Line-Port Cost Fraction
B173	Per line monthly LNP cost
B174	Carrier – Carrier Customer Service, per line per year
B175	NID Expense per line per year
B176	DS-0/DS-1 Terminal factor
B177	DS-1/DS-3 Terminal factor
B178	Average Lines per Business Location
B179	Average Trunk Utilization

Excavation and Restoration

Underground Excavation

B180	Trenching, per Foot
B180	Backhoe Fraction
B180	Backhoe Cost, per Foot
B180	Hand Trench Fraction
B180	Hand Trench Cost per Foot

Underground Restoration

B181	Cut/Restore Asphault Fraction
B181	Cut/Restore Asphault, per Foot
B181	Cut/Restore Concrete Fraction
B181	Cut/Restore Concrete, per Foot
B181	Cut/Restore Sod Fraction
B181	Cut/Restore Sod, per Foot
B181	Simple Backfill, per Foot
B181	Pavement, per Foot
B181	Dirt, per Foot

Buried Excavation

B182	Plow Fraction
B182	Plow per Foot
B182	Trench per Foot
B182	Backhoe Fraction
B182	Backhoe, per Foot
B182	Hand Trench Fraction
B182	Hand Trench, per Foot
B182	Bore Cable Fraction
B182	Bore Cable, per Foot

Buried Installation and Restoration

B183	Push Pipe/Pull Cable Fraction
B183	Push Pipe/Pull Cable per Foot
B183	Cut/Restore Asphault Fraction
B183	Cut/Restore Asphault, per Foot
B183	Cut/Restore Concrete Fraction
B183	Cut/Restore Concrete, per Foot
B183	Cut/Restore Sod Fraction

B183 Cut/Restore Sod, per Foot
B183 Resotral Not Required
B183 Simple Backfill

Surface Texture
B184 Percent of CBG Likely Affected and Effect of Texture Code

Part 2: Input Parameter Definitions and Default Values

DISTRIBUTION INPUT PARAMETERS

B1. NID Investment per line

Definition

The investment in the components of the network interface device (NID), the device at the customers' premises within which the drop wire terminates, and which is the point of subscriber demarcation.

Default Values

NID Materials and Installation	Cost
Residential NID case, no protector	$10.00
Residential NID basic labor	$15.00
Installed NID case	*$25.00*
Maximum lines per res. NID	6
Protection block, per line	$4.00
Business NID case, no protector	$25.00
Business NID basic labor	$15.00
Installed NID case	*$40.00*
Protection block, per line	$4.00

B2. Drop Distance

Definition

The average length of a drop cable in each of nine density zones.

Default Values

Drop Distance	
Density Zone	Drop Distance
0-5	150
5-100	150
100-200	100
200-650	100
650-850	50
850-2,550	50
2,550-5,000	50
5,000-10,000	50
10,000+	50

B3. Drop Placement, Aerial and Buried

Definition

The total placement cost by density zone of an aerial drop wire, and the cost per foot for buried distribution cable placement, respectively.

Default Values

Drop Placement, Aerial & Buried		
Density Zone	Aerial, total	Buried, per foot
0-5	$23.33	$0.75
5-100	$23.33	$0.75
100-200	$17.50	$0.75
200-650	$17.50	$0.75
650-850	$11.67	$0.75
850-2,550	$11.67	$0.75
2,550-5,000	$11.67	$1.13
5,000-10,000	$11.67	$1.50
10,000+	$11.67	$5.00

B4. Buried Drop Sharing Fraction

Definition

The fraction of buried drop cost that is assigned to the telephone company. The other portion of the cost is borne by other utilities.

Default Value

Density Zone	Fraction
0-5	.33
5-100	.33
100-200	.33
200-650	.33
650-850	.33
850-2,550	.33
2,550-5,000	.33
5,000-10,000	.33
10,000+	.33

B5. Drop Structure Fractions

Definition

The percentage of drops that are aerial and buried, respectively, as a function of CBG density zone.

Default values

Density Zone	Drop Structure Fraction	
	Aerial	Buried
0-5	.25	.75
5-100	.25	.75
100-200	.25	.75
200-650	.30	.70
650-850	.30	.70
850-2,550	.30	.70
2,550-5,000	.30	.70
5,000-10,000	.60	.40
10,000+	.85	.15

B6. Number of Lines per Business Location

Definition

The average number of business lines per business location, used to calculate NID and drop cost.

Default Value

4

B7. Terminal and Splice Investment per line

Definition

The installed cost per line for the terminal and splice that connect the drop to the distribution cable.

Default Value

Buried	Aerial
$42.50	$32.00

B8. Drop Cable Investment, per foot and Pairs per Wire

Definition

The investment per foot required for aerial and buried drop wire, and the number of pairs in each type of drop wire.

Default Values

Aerial	$0.095	2
Buried	$0.140	3

B9. Distribution Cable Sizes

Definition

Cable sizes used for distribution cable variables (in pairs).

Default Values

Cable Size
2400
1800
1200
900
600
400
200
100
50
25
12
6

B10. Copper Distribution Cable, $/foot

Definition

The cost per foot of copper distribution cable, as a function of cable size, including the costs of engineering, installation, and delivery, as well as the cable material itself.

Default Values

Cable Size	Cost/foot (including engineering, installation, delivery and material)
2400	$20.00
1800	$16.00
1200	$12.00
900	$10.00
600	$7.75
400	$6.00
200	$4.25
100	$2.50
50	$1.63
25	$1.19
12	$0.76
6	$0.63

B11. Riser Cable, $/foot

Definition

The cost per foot of copper riser cable (cable inside high-rise buildings), as a function of cable size, including the costs of engineering, installation, and delivery, as well as the cable material itself.

Default Values

Cable Size	Cost/foot (including engineering, installation, delivery and material)
2400	$20.00
1800	$16.00
1200	$12.00
900	$10.00
600	$7.75
400	$6.00
200	$4.25
100	$2.50
50	$1.63
25	$1.19
12	$0.76
6	$0.63

B12. Pole Investment

Definition

The installed cost of a 40' Class 4 treated southern pine pole.

Default Value

Materials	$201
Labor	$216
Total	*$417*

B13. Buried Copper Cable Sheath Multiplier (feeder and distribution)

Definition

The additional cost of the filling compound used in buried cable to protect the cable from moisture expressed as a multiplier of the cost of non-armored cable.

Default value

1.04

B14. Conduit Material Investment per foot

Definition

Material cost per foot of duct for 4" PVC.

Default Value

$0.60

B15. Spare Tubes per Route (distribution)

Definition

The number of spare tubes (i.e., conduit) placed per route.

Default Value

1

B16. Regional Labor Adjustment Factor

Definition

A factor that adjusts the labor cost portion of certain investments to account for regional differences in the availability of trained labor, union contracts, and cost of living factors.

Default value

1.0

B17. Distribution Structure Fractions

Definition

The relative amounts of different structure types supporting distribution cable in each density zone. Aerial distribution cable is attached to telephone poles or buildings, buried cable is laid directly in the earth, and underground cable runs through underground conduit. In the highest two density zones, aerial structure includes riser and block cable.

Defaults

0-5	.25	.75	*0*
5-100	.25	.75	*0*
100-200	.25	.75	*0*
200-650	.30	.70	*0*
650-850	.30	.70	*0*
850-2,550	.30	.70	*0*
2,550-5,000	.30	.65	*.05*
5,000-10,000	.60	.35	*.05*
10,000+	.85	.05	*.10*

B18. Distribution Cable Fill Factors

Definition

The spare or excess capacity in a distribution cable, calculated as the ratio of the number of assigned pairs to the total number of available pairs in the cable.

Default Values

Density Zone	Fill Factor
0-5	.50
5-100	.55
100-200	.55
200-650	.60
650-850	.65
850-2,550	.70
2,550-5,000	.75
5,000-10,000	.75
10,000+	.75

B19. Distribution Pole Spacing

Definition

Spacing between poles supporting aerial distribution cable.

Default Values

0-5	250
5-100	250
100-200	200
200-650	200
650-850	175
850-2,550	175
2,550-5,000	150
5,000-10,000	150
10,000+	150

B20. Distribution Multiplier, Difficult Terrain

Definition

The amount of extra distance required to route distribution and feeder cable around difficult soil conditions, expressed as a multiplier of the distance calculated for normal situations.

Default

1.0

B21. Rock Depth Threshold, inches

Definition

The depth of bedrock, above which (that is, closer to the surface) additional costs are incurred for placing distribution or feeder cable.

Default

24 inches

B22. Hard Rock Placement Multiplier

Definition

The increased cost required to place distribution or feeder cable in bedrock classified as hard, when it is within the rock depth threshold of the surface, expressed as a multiplier of normal installation cost per foot.

Default

3.5

B23. Soft Rock Placement Multiplier

Definition

The increased cost required to place distribution or feeder cable in bedrock classified as soft, when it is within the rock depth threshold of the surface, expressed as a multiplier of normal installation cost per foot.

Default

2.0

B24. Sidewalk / Street Fraction

Definition

The fraction of small (< .03 sq. mile) downtown CBGs that are streets and sidewalks.

Default

.20

B25. Local RT (per cluster) thresholds – Maximum Total Distance

Definition

The maximum potential distribution length, in feet, above which Remote Terminals are located at the center of each cluster, rather than at the center of the CBG, in order to reduce the remaining distribution length.

Default

18,000

B26. Town Factor

Definition

The fraction of business and residential customers that are assumed to be located in towns, as opposed to surrounding areas, for those cases in which the model determines that population should be clustered in towns.

Default

.85

B27. Maximum Lot Size, in acres

Definition

The maximum effective lot size in a CBG, above which it is assumed that the population is clustered into areas whose effective lot size is the default value (that is, there is a cap on the amount of land each subscriber occupies).

Default

3.0 acres

B28. Town Lot Size, in acres

Definition

The lot size of subscribers residing in towns when the model determines that clustering in towns is appropriate.

Default

3.0 acres

B29. Repeater Investment, Installed

Definition

The investment per T1 repeater, including electronics, housing, and installation, for T1 extension of loops along road cables longer than 18,000 ft.

Default

B30. Integrated COT, installed

Definition

The installed COT investment per road cable required to terminate the DLC connection serving subscribers along roads longer than 18,000 ft.

Default

B31. Remote Multiplexer Common Equipment Investment, Installed

Definition

The installed investment per subsidiary remote terminal used to serve subscribers along road cables longer than 18,000 ft.

Default

B32. Channel Unit Investment per Subscriber

Definition

The investment per line in POTS channel units installed in subsidiary RTs serving subscribers located along roads longer than 18,000 ft.

Default

B33. COT Investment per RT, Installed

Definition

The installed investment per subsidiary RT in protocol conversion equipment for interfacing with the

integrated COT.

Default

B34. Serving Area Interface (SAI) Investment

Definition

The installed investment in the SAI that acts as the physical interface point between distribution and feeder cable.

Default Values

[illegible]	[illegible]	[illegible]
7200	$3,456	$10,000
5400	$2,592	$8,200
3600	$1,728	$6,000
2400	$1,152	$4,300
1800	$864	$3,400
1200	$576	$2,400
900	$432	$1,900
600	$288	$1,400
400	$192	$1,000
200	$96	$600
100	$48	$350
50	$48	$250

B35. Percentage of Dedicated Circuits

Definition

Fraction of dedicated lines appearing as individual voice grade circuits or individual DS-0 equivalents, DS-1s, or DS-3s.

Default

100% voice-grade/individual DS-0

B36. Pairs per Dedicated Circuit

Definition

Factor expressing the number of wire pairs required per dedicated circuit classification.

Default

1 -- DS-0/voice grade
2 – DS-1
56 – DS-3

FEEDER INPUT PARAMETERS

B37. Copper Feeder Structure Fractions

Definition

The relative amounts of different structure types supporting sheath feet of copper feeder cable in each density zone. Aerial feeder cable is attached to telephone poles, buried cable is laid directly in the earth, and underground cable runs through underground conduit.

Default Values

Density Zone	Aerial Cable	Buried Cable	Underground Cable
0-5	.50	.45	*.05*
5-100	.50	.45	*.05*
100-200	.50	.45	*.05*
200-650	.40	.40	*.20*
650-850	.30	.30	*.40*
850-2,550	.20	.20	*.60*
2,550-5,000	.15	.10	*.75*
5,000-10,000	.10	.05	*.85*
10,000+	.05	.05	*.90*

B38. Copper Feeder Manhole Spacing, feet

Definition

The distance, in feet, between manholes for copper feeder cable.

Default Values

Density Zone	Distance between manholes
0-5	800
5-100	800
100-200	800
200-650	800
650-850	600
850-2,550	600
2,550-5,000	600
5,000-10,000	400
10,000+	400

B39. Copper Feeder Pole Spacing, feet

Definition

Spacing between poles supporting aerial copper feeder cable.

Default Values

[illegible]	
0-5	250
5-100	250
100-200	200
200-650	200
650-850	175
850-2,550	175
2,550-5,000	150
5,000-10,000	150
10,000+	150

B40. Copper Feeder Pole Investment

Definition

The installed cost of a 40' Class 4 treated southern pine pole.

Default Value

[illegible] Pole Investment	
Materials	$201
Labor	$216
Total	*$417*

B41. Inner Duct Material Investment per foot

Definition

Material cost per foot of inner duct.

Default Value

$0.30

B42. Fiber Feeder Structure Fractions

Definition

The relative amounts of different structure types supporting fiber feeder cable in each density zone. Aerial feeder cable is attached to telephone poles, buried cable is laid directly in the earth, and underground cable runs through underground conduit.

Default Values

0-5	.35	.60	*.05*
5-100	.35	.60	*.05*
100-200	.35	.60	*.05*
200-650	.30	.60	*.10*
650-850	.30	.30	*.40*
850-2,550	.20	.20	*.60*
2,550-5,000	.15	.10	*.75*
5,000-10,000	.10	.05	*.85*
10,000+	.05	.05	*.90*

B43. Fiber Feeder Pullbox Spacing, feet

Definition

The distance, in feet, between pullboxes for underground fiber feeder cable.

Default Values

0-5	2,000
5-100	2,000
100-200	2,000
200-650	2,000
650-850	2,000
850-2,550	2,000
2,550-5,000	2,000
5,000-10,000	2,000
10,000+	2,000

B44. Buried Fiber Sheath Addition, per foot

Definition

The cost of dual sheathing for additional mechanical protection of buried fiber feeder cable.

Default Value

$0.20/foot

B45. Copper Feeder Cable Fill Factors

Definition

The spare or excess capacity in a feeder cable, calculated as the ratio of the number of assigned pairs to the total number of available pairs in the cable.

Default Values

0-5	.65
5-100	.75
100-200	.80
200-650	.80
650-850	.80
850-2,550	.80
2,550-5,000	.80
5,000-10,000	.80
10,000+	.80

B46. Fiber Feeder Fill Factor

Definition

Percentage of fiber strands in a cable that are available to be utilized.

Default

Fiber Feeder Fill Factors	
Density Zone	Fill Factor
0-5	1.00
5-100	1.00
100-200	1.00
200-650	1.00
650-850	1.00
850-2,550	1.00
2,550-5,000	1.00
5,000-10,000	1.00
10,000+	1.00

B47. Copper Feeder Cable, $/ foot

Definition

The cost per foot of copper feeder cable, as a function of cable size, including the costs of engineering, installation, and delivery, as well as the cable material itself.

Default Value

Copper Feeder Investment, per foot	
Cable Size	$/foot (u/g & aerial)
4200	$29.00
3600	$26.00
3000	$23.00
2400	$20.00
1800	$16.00
1200	$12.00
900	$10.00
600	$7.75
400	$6.00
200	$4.25
100	$2.50

B48. Fiber Feeder Cable, $/foot

Definition

The cost per foot of fiber feeder cable, as a function of cable size, including the costs of engineering, installation, and delivery, as well as the cable material itself.

Default Value

Fiber Feeder Investment, per foot	
Cable Size	$/foot (u/g & aerial)
216	$13.10
144	$9.50
96	$7.10
72	$5.90
60	$5.30
48	$4.70
36	$4.10
24	$3.50
18	$3.20
12	$2.90

B49. DLC site and power per remote terminal

Definition

The investment associated with site and power for the remote terminal of a Digital Loop Carrier (DLC) system.

Default Value

$3,000	$2,500

B50. Maximum Line Size per Remote Terminal

Definition

The maximum number of lines supported by the initial line module of a remote terminal.

Default

Maximum Line Increment per Remote Terminal	
TR-303 DLC	Low Density DLC
672	96

B51. Remote terminal fill factor

Definition

Definition: The line unit fill factor in a DLC remote terminal, that is, the; the ratio of lines served by a DLC remote terminal to the number of line units equipped in the remote terminal.

Default Value

Remote Terminal Fill Factor	
TR-303 DLC	Low Density DLC
.90	.90

B52. DLC initial common equipment investment

Definition

The cost of all common equipment and housing in the remote terminal, as well as the fiber optics multiplexer required at the CO end for the initial line module of the DLC system (assumes integrated digital loop carrier (IDLC)).

Default Value

Remote Terminal Initial Common Equipment Investment	
TR-303 DLC	Low Density DLC
$66,000	$13,000

B53. DLC channel unit investment

Definition

The investment in channel units required in the remote terminal of the DLC system.

Default Value

$310	$250

B54. DLC Lines per CU

Definition

The number of lines that can be supported on a single DLC channel unit.

Default Value

4	2

B55. Low Density DLC to TR-303 DLC Cutover

Definition

The threshold number of lines served, above which the TR-303 DLC will be utilized.

Default

384

B56. Fibers per remote terminal

Definition

The number of fibers connected to each DLC remote terminal, including one for upstream transmission, one for downstream transmission, and two for redundancy.

Default Value

Fibers per Remote Terminal	
TR-303 DLC	Low density DLC
4	4

B57. Optical Patch Panel

Definition

The investment required for each optical patch panel associated with a DLC remote terminal.

Default

Optical Patch Panel	
TR-303 DLC	Low density DLC
$1000	$1000

B58. Copper Feeder Maximum Distance, feet

Definition

The feeder length above which fiber feeder cable is used in lieu of copper cable. This value must be less than 18,000 feet.

Default Value

9,000 ft.

B59. Common Equipment Investment per Additional Line Increment

Definition

The cost of the common equipment required to add each additional line module in a remote terminal.

Default

[illegible]	[illegible]
[illegible]	[illegible]
$18,500	$11,000

B60. Maximum Number of Additional Line Modules per Remote Terminal

Definition

The number of line modules (in increments of 672 or 96 lines) that can be added to a remote terminal.

Default

[illegible]	[illegible]
[illegible]	[illegible]
2	1

B61. Manhole Investment, materials and labor

Definition

The installed cost of a prefabricated concrete manhole, including backfill and restoration. All the non-italicized costs in the following table are separately adjustable.

Default Value

Copper Cable Manhole Investment						
Density Zone	Materials	Frame & Cover	Site Delivery	Total Material	Engineering, Placing & Splicing	Total Installed Manhole
0-5	$1,865	$350	$125	*$2,340*	$2,800	*$5,140*
5-100	$1,865	$350	$125	*$2,340*	$2,800	*$5,140*
100-200	$1,865	$350	$125	*$2,340*	$2,800	*$5,140*
200-650	$1,865	$350	$125	*$2,340*	$2,800	*$5,140*
650-850	$1,865	$350	$125	*$2,340*	$3,200	*$5,540*
850-2,550	$1,865	$350	$125	*$2,340*	$3,500	*$5,840*
2,550-5,000	$1,865	$350	$125	*$2,340*	$3,500	*$5,840*
5,000-10,000	$1,865	$350	$125	*$2,340*	$5,000	*$7,340*
10,000+	$1,865	$350	$125	*$2,340*	$5,000	*$7,340*

B62. Fiber Feeder Pullbox Investment

Definition

The investment per fiber pullbox in the feeder portion of the network.

Default Values

Fiber Pullbox Investment		
Density Zone	Pullbox Material	Pullbox Installation
0-5	$280	$220
5-100	$280	$220
100-200	$280	$220
200-650	$280	$220
650-850	$280	$220
850-2,550	$280	$220
2,550-5,000	$280	$220
5,000-10,000	$280	$220
10,000+	$280	$220

SWITCHING AND INTEROFFICE TRANSMISSION PARAMETERS

B63. Switch real-time limit, busy hour call attempts

Definition

The maximum number of busy hour call attempts (BHCA) a switch can handle. If the model determines that the load on a processor, calculated as the number of busy hour call attempts times the processor feature load multiplier, would exceed the switch real time limit multiplied by the switch maximum processor occupancy, it will require the addition of another switch.

Default Values

Switch Real-time limit, BHCA	
Lines Served	Switch BHCA
1-1,000	10,000
1,000-10,000	50,000
10,000-40,000	200,000
40,000+	600,000

B64. Switch traffic limit, BHCCS

Definition

The maximum amount of traffic, measured in hundreds of call seconds (CCS), the switch can carry in the busy hour (BH).

Default Value

Lines	Busy Hour CCS
1-1,000	30,000
1,000-10,000	150,000
10,000-40,000	600,000
40,000+	1,800,000

B65. Switch maximum equipped line size

Definition

The maximum number of lines plus trunk ports that a typical digital switching machine can support.

Default Value

80,000

B66. Switch port administrative fill

Definition

The percent of lines in a switch that are working compared to the total lines in a switch.

Default Value

0.98

B67. Switch maximum processor occupancy

Definition

The fraction of total capacity (measured in busy hour call attempts, BHCA) an end office switch is allowed to carry before the model adds another switch.

Default Value

0.90

B68. MDF/Protector Investment per Line

Definition

The Main Distribution Frame investment, including protector, required to terminate one line.

Default Value

$12.00

B69. Analog Line Circuit Offset for DLC lines, per line

Definition

The amount of reduction in per line switched cost caused by the deletion of line cards for lines served by DLC, because the interface to the switch is not on a per line basis.

Default Value

$5.00

B70. Switch installation multiplier

Definition

Definition: The telephone company investment in switch engineering and installation activities, expressed as a multiplier of the switch investment.

Default Value

1.10

B71. End Office Switching Investment Constant Term

Definition

The value of the constant appearing in the function that calculates the per line switching investment as a function of switch line size, expressed separately for BOCs and large independents and for small independents.

Default Values

BOC and large ICO - $242.73
Small ICO - $416.11

B72. EO Switching Investment Slope Term

B73. Processor feature loading multiplier

Definition

The amount by which the load on a processor exceeds the load associated with ordinary telephone calls, due to the presence of vertical features, Centrex, etc., expressed as a multiplier of nominal load.

Default Value

1.20 for business line percentage up to the variable business penetration rate, increasing linearly above that rate to a final value of 2.00 for 100% business lines.

B74. Business Penetration Ratio

Definition

The percentage of business lines to total line at which the processor feature loading multiplier is assumed to reach the "heavy business" value of 2.

Default Value

0.30

B75. Lot size, multiplier of switch room size

Definition

The multiplier of switch room size to arrive at total lot size, assuming that land area is needed to accommodate building plus parking requirements.

Default Value

2

B76. Tandem/EO wire center common factor

Definition

The percentage of tandem switches that are also end office switches or are collocated in wire centers with end office switches. This accounts for the fact that tandems and end offices are often located together, and is employed to avoid double counting of land and other wire center investment in these instances.

Default Value

0.4

B77. Power investment

Definition

The wire center investment required for rectifiers, battery strings, back-up generators and various distributing frames, as a function of switch line size.

Default Value

Lines	Investment Required
0	$5,000
1000	$10,000
5000	$20,000
25,000	$50,000
50,000	$250,000

B78. Switch room size

Definition

The area in square feet required to house a switch and its related equipment.

Default Value

Switch Room Size	
Lines	Sq. Feet of Floor Space Required
0	500
1,000	1,000
5,000	2,000
25,000	5,000
50,000	10,000

B79. Construction costs, per sq. ft.

Definition

The costs of construction of a wire center building.

Default Value

Construction Costs per sq. ft.	
Lines	Cost/sq. ft.
0	$75
1,000	$85
5,000	$100
25,000	$125
50,000	$150

B80. Land price, per sq. ft.

Definition

The land price associated with a wire center.

Default Value

Lines	Price/sq. ft.
0	$5.00
1,000	$7.50
5,000	$10.00
25,000	$15.00
50,000	$20.00